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### REMARKS

Claims 1-38 were pending in the present application. Claims 1 and 3 have been amended, Claims 8-30 have been withdrawn, and Claims 2, and 31-38 have been canceled, leaving Claims 1 and 3-7 for further consideration in the present amendment.

Support for the amended claim comes from the definitions for the alkyl and aryl or aromatic groups in paragraph 11 of the specification.

Reconsideration and allowance of the claims is respectfully requested in view of the above amendments and the following remarks.

#### Claim Objections

The objections have been rendered moot in view of the cancellation of Claims 2, and 31-37.

#### Claim Rejections Under 35 U.S.C. § 112, first paragraph

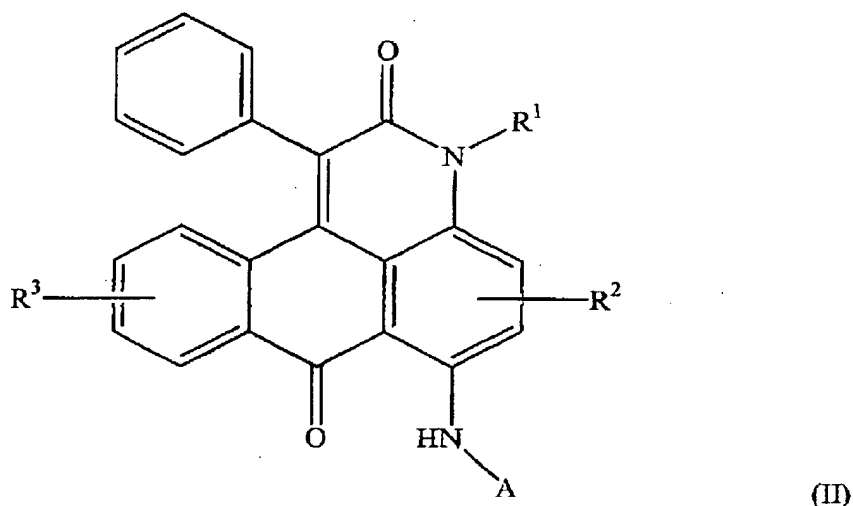
Claim 1 stands rejected under 35 U.S.C. § 112, first paragraph, purportedly because the specification, while being enabling for  $R^4$  being a phenyl group and  $R^1 - R^3$  being a H or an alkyl, does not reasonably provide enablement for any aliphatic group, aromatic group, heterocyclic, amino, cyano, or sulfonyl "containing" or even just these groups and also the substituents on "A" are not described. Applicants respectfully traverse.

Applicants amended Claim 1 defines the  $R^4$  substituent as from the group consisting of an aliphatic group and an aromatic group. Although the Office Action indicated that the phenyl substituent was enabled, it is respectfully submitted that the claimed aliphatic and/or aromatic groups are enabled as well. For similar reasons that will be discussed in greater detail below, it is also submitted that the  $R^1 - R^3$  substituents are enabled for aromatic groups in addition to the hydrogen and alkyl group acknowledged by the Examiner to be enabled.

As discussed in the Applicants' specification in paragraphs [0016]-[0020], there is sufficient guidance to one of ordinary skill in the art to make anthrapyridones (in addition to the

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substituents the Examiner has already acknowledged as enabled), wherein  $R^4$  is an aromatic group,  $R^1$  is an aromatic group,  $R^2$  and  $R^4$  are various combinations of aliphatic and aromatic groups. The physical and chemical properties of these anthrapyridones would not be expected to be significantly different from those of the exemplary anthrapyridones. For example, there are various synthetic methods discussed in Applicants' specification for the synthesis of the pyridone ring of the exemplary anthrapyridones of formula (II):



wherein  $R^4$  is phenyl, and  $R^1 - R^3$  are each H, there is sufficient guidance to make and use anthrapyridones wherein  $R^4$  is an aromatic group instead of a phenyl group,  $R^1$  is an aromatic group,  $R^2$  and  $R^4$  are various combinations of aliphatic and aromatic groups. Because of this disclosure, one of ordinary skill in the art (i.e., a PhD organic chemist with several years of experience) would not be exposed to a high and undue level of experimentation to make the various claimed anthrapyridones. In terms of synthetic complexity, the chemistry involved in preparing the claimed anthrapyridones is not at all difficult and is fairly straightforward using well-known reaction schemes.

Accordingly, Applicants respectfully request that the rejection be withdrawn.

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Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1 – 7, and 31 – 38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. 20030051633 (Blease et al.) and JP 5368234, and GB 1047297 (Cooper et al.). Applicants respectfully traverse.

Blease is generally directed to anthrapyridones, wherein the R<sup>4</sup> group can be an aryl group, and the “A” group can be a substituted or an unsubstituted phenyl group.

JP5368234 is generally directed to anthrapyridones, wherein the R<sup>4</sup> group is hydrogen, and the “A” group is an anthraquinonyl.

Cooper is generally directed to anthrapyridones, wherein the R<sup>4</sup> group can be hydrogen, an acetyl, or a carboalkoxy group.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996). An Examiner thus cannot base a determination of obviousness on what the skilled person in the art might try or find obvious to try. Rather, the proper test requires determining what the prior art would have led the skilled person to do, with a reasonable expectation of success.

The cited references, individually or in combination, fail to establish a prima facie case of obviousness. As discussed in Applicants' application, the claimed anthrapyridones function as colorants for polymer compositions. Colored polymer compositions are generally obtained by

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blending and molding the claimed anthrapyridone colorant with a polymer at an elevated temperature, e.g., a temperature greater than 350°C. After extensive research effort and development, Applicants have unexpectedly found that the claimed anthrapyridones exhibit high temperature stability and color hold suitable for elevated temperature processing. As noted in Applicants' experimental section, the anthrapyridones of Comparative Examples 1 – 4 (wherein the "A" group is a phenyl derivative – 4-methylanilino, 4-acetamidylanilino, 2,5-dimethoxyanilino, and 4-butoxyanilino) exhibited significantly inferior final color in molded chip, lower decomposition onset temperature, and higher weight percent loss at 400°C, as compared with the claimed anthrapyridones. In fact, an undesirable color shift was observed.

Blease teaches and suggests anthrapyridones that include an R<sup>1</sup> (corresponds to Applicants R<sup>4</sup> group) defined as a hydrogen, a substituted or unsubstituted alkoxy, carbonyl, carboxyl, benzoyl, alkyl, aryl, hetaryl, alkoxy, or phenoxy group. For the A position, Blease teaches and suggests substituted phenyl substituents, wherein the substitution can be hydrogen, halogen, nitro, hydroxyl, carboxyl, substituted or unsubstituted alkyl, alicyclic, aryl, hetaryl, alkoxy, phenoxy, amino, amido, or sulfonamido. As supported in Applicants' comparative examples, the anthrapyridones with the phenyl substituents taught and suggested by Blease would not be expected to exhibit the thermal stability of Applicants' claimed anthrapyridones. Also, with regard to the R<sup>1</sup> substituents taught by Blease, it is noteworthy that the Examiner has carefully selected the teaching of an anthrapyridone that defines the R<sup>1</sup> group as an aryl group to combine with the secondary references in the obviousness rejection while ignoring the numerous other substituents as they are broadly defined. As such, the Examiner ignores Blease's teachings and suggestions as they relate to the A position as well as the numerous other substituents suggested for the R<sup>1</sup> position.

Cooper teaches and suggests anthrapyridones including an X substituent (corresponds to Applicants R<sup>4</sup> group) defined as hydrogen, acetyl, and carboalkoxy groups. These compounds also would not be expected to have the high temperature stability and color hold in high temperature polymer processing that Applicants' anthrapyridones exhibit.

The Japanese reference JP5368234, teaches anthrapyridones that have hydrogen for the R<sup>4</sup>

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group. These anthrapyridones, by themselves, would not be expected to be oxidatively and thermally stable under the polymer processing conditions employed with the anthrapyridones of formula (I) that Applicants consider as their invention, primarily due to the potential lability of the R<sup>4</sup> hydrogen group.

Based on the teaching of the references as a whole, it is clear than the Office Action is improperly picking and choosing various elements from the references with complete disregard for what each of the references teach as a whole. None of the references by themselves would provide suitable anthrapyridones for high temperature processing with polymers nor would one be motivated to select and discriminate among the various substituents taught by the various references to arrive at the claimed anthrapyridones.

In applying Section 103, the U.S. Court of Appeals for the Federal Circuit has consistently held that one must consider both the invention and the prior art "as a whole", not from improper hindsight gained from consideration of the claimed invention. See, *Interconnect Planning Corp. v. Feil*, 227 U.S.P.Q. 543, 551 (Fed. Cir. 1985) and cases cited therein. According to the *Interconnect* court

[n]ot only must the claimed invention as a whole be evaluated, but so also must the references as a whole, so that their teachings are applied in the context of their significance to a technician at the time - a technician without our knowledge of the solution.

*Id.* Also critical to this Section 103 analysis is that understanding of "particular results" achieved by the invention. *Id.*

When, as here, the Section 103 rejection was based on selective combination of the prior art references to allegedly render a subsequent invention obvious, "there must be some reason for the combination other than the hindsight gleaned from the invention itself." *Id.* Stated in another way, "[i]t is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." *In re Fritch* 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992).

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Each cited reference discloses anthrapyridones that would be unsuitable for Applicants' intended purpose, e.g., high temperature processing with polymers. None of the references provide an understanding as to the problems with high temperature processing with polymers. The Examiner herself has commented that the "state of art is unpredictable" yet makes a very selective combination of substituents taught amongst three prior art references in total disregard for what each of these references teach as a whole. For example, Blease teaches and suggests that the R<sup>1</sup> group (corresponds to Applicants' R4 group) can also be a hydrogen, a substituted or unsubstituted alkoxycarbonyl, carboxyl, benzoyl, alkyl, aryl, hetaryl, alkoxy, or phenoxy group in addition to the aryl groups. The Examiner ignores the teaching of the other groups and carefully discriminates the teaching of these other groups to select the aryl group for combination with specific teaching provided by the other references.

Even if a *prima facie* case of obviousness were conceded, which it is not, it is respectfully submitted that Applicant's invention is not obvious because the particular combination of claimed elements results in unexpectedly beneficial properties. An Applicant can rebut a *prima facie* case of obviousness by presenting comparative test data showing that the claimed invention possesses unexpectedly improved properties or properties that the prior art does not have. *In re Dillon*, 919 F.2d 688, 692-93, 16 U.S.P.Q.2d 1987, 1901 (Fed. Cir. 1990). Applicants have included comparative data that clearly shows that certain substituents in the A position in combination with the various R<sup>1</sup>–R<sup>4</sup> groups do not provide the desired temperature stability for polymer blending and molding processes.

In view of the foregoing, the Applicants request that the Examiner withdraw the rejection under 35 U.S.C. 103(a) of Claim 1 and Claims 3 – 7 depending therefrom.

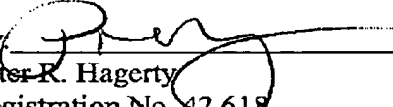
It is believed that the foregoing amendments and remarks fully comply with the Office Action and place the application in condition for immediate allowance, which action is earnestly solicited.

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If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 07-0862 maintained by Assignee.

Respectfully submitted,

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